CLAIMS

The subject matter claimed is:

1. A method for delivery of a hydrophobic drug to a selected site in a patient comprising:

(a) administering to said patient a composition comprising a micellar drug carrier comprising a hydrophobic core and an effective amount of said hydrophobic drug disposed in said hydrophobic core, wherein said micellar drug carrier is a member selected from the group consisting of AB-diblock copolymers, ABA-triblock copolymers, mixtures of AB-diblock copolymers and ABA-triblock copolymers, and mixtures of PEGylated diacylphospholipids and AB-diblock copolymers, ABA-triblock copolymers, or mixtures of AB-diblock and ABA-triblock copolymers; and

(b) applying ultrasound at a frequency of 20-100 kilohertz to said selected site such that said hydrophobic drug is released from said hydrophobic core to said selected site.

2. The method of claim 1 wherein the micellar drug carrier is poly(L-amino acid)-co-poly(ethylene oxide) diblock copolymer.

3. The method of claim 1 wherein the micellar drug carrier is poly(ethylene oxide)-poly(propylene oxide)-poly(ethylene oxide) triblock copolymer.

4. The method of claim 1 wherein the micellar drug carrier is a mixture of an AB-diblock copolymer and poly(ethylene oxide)-poly(propylene oxide)-poly(ethylene oxide) triblock copolymer.

5. The method of claim 1 wherein the micellar drug carrier is a mixture of a PEGylated diacylphospholipid and an AB-diblock copolymer or an ABA-triblock copolymer.

6. The method of claim 5 wherein the micellar drug carrier is a mixture of a PEGylated diacylphospholipid and poly(L-amino acid)-co-poly(ethylene oxide) diblock copolymer.

7. The method of claim 5 wherein the micellar drug carrier is a mixture of a PEGylated diacylphospholipid and poly(ethylene oxide)-poly(propylene oxide)-poly(ethylene oxide) triblock copolymer.

8. The method of claim 5 wherein the micellar drug carrier is a mixture of a PEGylated diacylphospholipid, poly(ethylene oxide)-poly(propylene oxide)-poly(ethylene oxide) triblock copolymer, and an AB-diblock copolymer.

9. The method of claim 8 wherein the PEGylated diacylphospholipid comprises 1,2-diacyl-sn-glycero-3-phosphoethanolamine-N-[methoxy(polyethylene glycol)].

10. The method of claim 5 wherein the hydrophobic drug is an anthracycline.

11. The method of claim 10 wherein the anthracycline is doxorubicin.

12. The method of claim 10 wherein the anthracycline is ruboxyl.

13. A composition comprising a micellar drug carrier comprising a hydrophobic core and an effective amount of said hydrophobic drug disposed in said hydrophobic core, wherein said micellar drug carrier further comprises a mixture of a PEGylated diacylphospholipid and an AB-diblock copolymer, an ABA-triblock copolymer, or a mixture of an AB-diblock copolymer and an ABA-triblock copolymer.

14. The composition of claim 13 wherein the PEGylated diacylphospholipid comprises 1,2-diacyl-sn-glycero-3-phosphoethanolamine-N-[methoxy(polyethylene glycol)].

15. The composition of claim 14 wherein said micellar drug carrier comprises poly(ethylene oxide)-poly(propylene oxide)-poly(ethylene oxide) triblock copolymer.

16. A method for delivery of a drug to a selected site in a patient comprising:

(a) administering to said patient a composition comprising a micellar drug carrier comprising a hydrophobic core and an effective amount of said drug disposed in said hydrophobic core, wherein said micellar drug carrier further comprises a mixture of an AB-diblock copolymer and an ABA-triblock copolymer; and

(b) applying ultrasound to said selected site such that said drug is released from said hydrophobic core to said selected site.

17. A method for delivery of a drug to a selected site in a patient comprising:

(a) administering to said patient a composition comprising a micellar drug carrier comprising a hydrophobic core and an effective amount of said drug disposed in said hydrophobic core, wherein said micellar drug carrier further comprises a mixture of a PEGylated diacylphospholipid and an AB-diblock copolymer, an ABA-triblock copolymer, or a mixture of an AB-diblock copolymer and an ABA-triblock copolymer; and

(b) applying ultrasound to said selected site such that said drug is released from said hydrophobic core to said selected site.

18. A method for delivery of a hydrophobic drug to a selected site in a patient comprising:

(a) administering to said patient a composition comprising a micellar drug carrier comprising a hydrophobic core and an effective amount of said hydrophobic drug disposed in said hydrophobic core, wherein said micellar drug carrier further comprises a mixture of 1,2-diacyl-sn-glycero-3-phosphoethanolamine-N-[methoxy(polyethylene glycol)] and poly(ethylene oxide)-poly(propylene oxide)-poly(ethylene oxide) triblock copolymer; and

(b) applying ultrasound at a frequency of 20-100 kilohertz to said selected site such that said hydrophobic drug is released from said hydrophobic core to said selected site.

19. A method of treating a multidrug resistant cancerous tumor in a patient in need thereof comprising:

(a) administering to said patient a composition comprising a micellar drug carrier comprising a hydrophobic core and an effective amount of an anticancer drug disposed in said hydrophobic core, wherein said micellar drug carrier is a member

selected from the group consisting of AB-diblock copolymers, ABA-triblock copolymers, mixtures of AB-diblock copolymers and ABA-triblock copolymers, and mixtures of PEGylated diacylphospholipids and AB-diblock copolymers, ABA-triblock copolymers, or mixtures of AB-diblock and ABA-triblock copolymers; and

(b) applying ultrasound at a frequency of 20-100 kilohertz targeted to said tumor such that said anticancer drug is released from said hydrophobic core to said tumor.

20. The method of claim 19 wherein said anticancer drug comprises doxorubicin.